

**A NEW NORTH AMERICAN SPECIES OF TEPHRITIS,
WITH SOME OBSERVATIONS ON ITS GENERIC
POSITION (DIPTERA, TEPHRITIDAE)**

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Recent revisionary studies of the fruit fly genus *Trypanea* Guetard and allies have brought to light a new species of *Tephritis* Latreille from the western United States closely related to *T. stigmatica* (Coq.). Malloch (1942) indicated that a Nevada specimen of this new species in the National Collection differed from *stigmatica* in several important respects, but he left it unnamed. Certain characters common to both of these species effectively bridge the discontinuity that heretofore existed between *Trypanea* and the genus *Tephritis* in North America. A discussion of this situation is presented below.

***Tephritis labecula*, n. sp.**

(Fig. 2)

Trypanea stigmatica (Coq.), part: Malloch, 1942, Proc. U. S. National Museum 92 (3133): 8, par. 2.

A western U. S. species with typical *Trypanea*-like wing pattern, a dark streak along vein $M_3 + Cu_1$ to its base, a dark spot at the base of vein $Cu_2 + 2nd\ A$, and a dark area of variable extent bridging the base of cell Cu_1 .

Head.—Higher than long from lateral view; width of cheek directly below eye about one-sixth the eye height; apex of third antennal segment nearly attaining oral margin; width of frons at apex equal to distance from vertex to lunule and about 1.5 times as wide as one eye.

Thorax.—Mesonotum light gray pollinose, with a number of short, stout, yellowish hairs over the surface, remaining bristles black; humerus and notopleuron yellow pollinose; pleural sclerites gray dusted as mesonotum. Scutellum concolorous with mesonotum; with two pairs of black scutellars, the apical pair about one-half as long as the basal.

Legs.—Mostly yellow; all femora, except extreme bases and apices, gray pollinose; a trace of gray pollinosity on central portions of all tibiae. Male without erect anteroventral bristles on mid femur.

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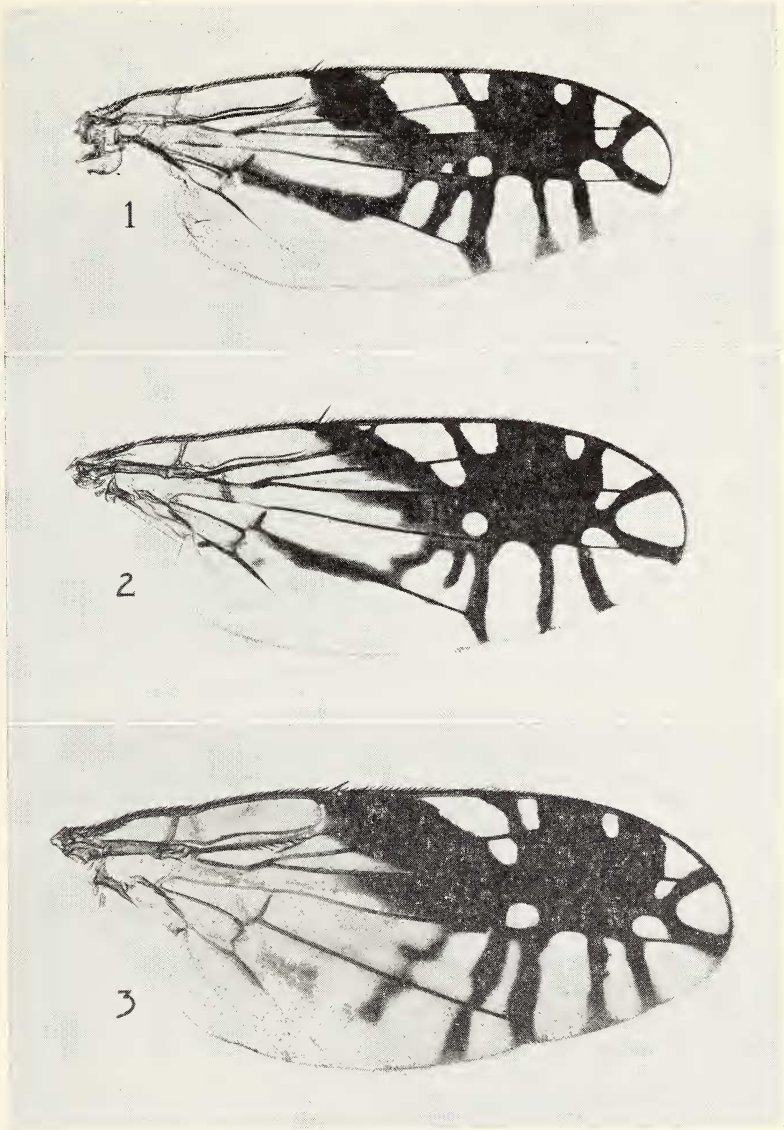
Wing (Fig. 2).—Preapical dark area similar to that of most other species in the genus, the posterior arm of the apical Y-shaped mark usually absent in male; marginal hyaline spot at apex of vein R_{2+3} about the same width as infuscated ray bordering it distally; dark ray connecting stigma to crossvein $r-m$ distinctly wider than cell R_1 directly posterior to stigma but distinctly narrower than length of stigma, leaving base and tip of stigma hyaline; cell R broadly infuscated proximad of crossvein $r-m$, the infuscation of greater width anteriorly than posteriorly; hyaline spot immediately anterior to crossvein $m-cu$ round and occupying only the lower half of cell R_5 at that point; distal infuscated ray through cell 1st M_2 complete to vein $M_3 + Cu_1$ and never extending beyond, sometimes broken in cell 1st M_2 , in which case there is an infuscated spot on vein $M_3 + Cu_1$ indicating its presence there; proximal infuscated ray through cell 1st M_2 always ending at vein $M_3 + Cu_1$ posteriorly, but continuing broadly along that vein nearly to its junction with vein Cu_1 , at which point it crosses the basal fourth of cell Cu_1 and surrounds the basal fourth of vein $Cu_2 + 2nd A$ and often some of the apex of cell 1st A , this dark area sometimes broken in cell Cu_1 but always present. Remainder of wing hyaline.

Abdomen.—Pollinosity and short, stout bristles much as on mesothorax, but slightly darker. Ovipositor sheath black, its basal half to two-thirds densely covered with short, stout, yellowish-white bristles, about 1.5 times as long as preceding abdominal tergite.

Types.—*Holotype*, female, with the following labels: "Grand Co., Utah," "Collection No. 21, G. E. Wallace," and "Carnegie Mus. Acc. No. 11394." This specimen and the paratypes bearing the same labels were collected at Willis Steven's Camp above the junction of Florence and Pole Canyons, elev. 8500'; in the collection of the Carnegie Museum, Pittsburg; Carnegie Museum Type No. 384. *Paratypes*. NEVADA: 1 ♀, no other data (the Malloch specimen). UTAH: Grand Co., 4 ♂♂, Aug. 1-4, 1933 (G. E. Wallace)² Carnegie Mus. Acc. No. 11349 (1 ♂, U. S. Nat. Mus., 3 ♂♂, CM); 2 ♂♂, 2 ♀♀, same data as holotype (1 ♀, USNM; 2 ♂♂, 1 ♀, CM)¹; 1 ♂, no definite locality, July, 1955 (G. F. Knowlton) (U. S. Nat. Mus.). WYOMING: 1 ♀, Buck Creek, Aug. 14, 1895; 1 ♂, Lance Creek, Aug. 14, 1895, one of the cotype series of *occidentalis* Adams (Foote, in press) (UK)².

² I wish to thank Dr. G. E. Wallace for making the tephritid collection of the Carnegie Museum, (CM) available for study, and Dr. George W. Byers for lending specimens from the Snow Entomological Collection, University of Kansas (UK).

FOOTE



EXPLANATION OF PLATE

Fig. 1. *Trupanea femoralis* (Thoms.). Fig. 2. *Tephritis labecula*, n. sp. Fig. 3. *Tephritis stigmatica* (Coq.). All dorsal views of right wing, female.

Discussion.—The resemblance in wing pattern of *labecula* (Fig. 2) to that of *Trupanea femoralis* (Thoms.) (Fig. 1) is striking, but the two pairs of scutellars, together with the dark spot in the base of its cell Cu_1 and the rounded proximal tip of the hyaline area immediately distad of its stigma, will easily distinguish it from *femoralis*. In addition, wings of males of *labecula* are essentially like those of the female, whereas males of *femoralis* have wings with the dark, apical Y-shaped mark almost entirely missing. *T. labecula* can be separated easily from *T. stigmatica* (Coq.) (Fig. 3) by the lack of dark markings in the distal half of cell Cu_1 and their presence on the proximal half of vein $M_3 + Cu_1$, the narrower dark ray from stigma to crossvein r-m, the indication of an oval hyaline spot near the apex of cell R close to vein M_{1+2} , and the position of the marginal hyaline spot at the apex of vein R_{2+3} (compare Figs. 2 and 3). Wing patterns in both males and females of *stigmatica* are essentially alike.

Generic Relationships of *labecula* and *stigmatica*

The wing pattern of almost all *Trupanea* species (Fig. 1) consists characteristically of a starlike marking subapically upon the wing disc, a small marginal hyaline spot always present immediately below the apex of vein R_{2+3} in cell R_3 , and the proximal posterior quarter of the wing with strongly reduced markings. A general resemblance to this subapical starlike mark is also found in wing patterns of *Tephritis*, but in most species of that genus the marginal hyaline spot is proximad of the tip of vein R_{2+3} in cell R_1 , rather than as described above, and in most species the proximal posterior quarter of the wing is rather heavily marked with brown or gray (Quisenberry, 1951, Figs. 1, 2, 4-13). *T. labecula* (Fig. 2), with the least amount of basal infuscation, and *T. stigmatica* with somewhat more, effectively bridge the gap between the two genera, the former resembling *femoralis*, a true *Trupanea* having the most extensive basal wing markings of all North American species in that genus, and the latter resembling *Tephritis subpura* (Johns.).³

However, Hendel (1927), Curran (1932) and Quisenberry (1951) have restricted *Tephritis* to those species with two pairs of scutellars; *labecula* and *stigmatica* would automatically fall within

³ For an illustration of *T. subpura*, see Quisenberry, 1951, Fig. 6. a typical *Tephritis* with the least amount of dark marking in this area of the wing. On the basis of wing pattern alone, then, one might justifiably assume that no discontinuity between *Tephritis* and *Trupanea* really exists.

that concept in spite of their *Trupanea*-like wing pattern. I tend to agree with Quisenberry's belief that the wing pattern in this group has less than generic significance, and hence restrict *Trupanea* to those species with only one pair of scutellars, in contrast to Malloch's (1942) contention that the wing pattern features are of primary importance.

A possible solution might be the establishment of subgenera within the *Tephritis-Trupanea* concept. Benjamin (1943) made a beginning in this direction, but in my view did not study a large enough segment of the family. One such subgenus might logically include those species with a typical *Trupanea* wing pattern and a single pair of scutellars; into another would fall *labecula*, *stigmatica*, *subpura*, and possibly *pura* (Lw.), because of their *Trupanea*-like wings and two pairs of scutellars; in yet a third would be placed all those species with typical *Tephritis* wings and two pairs of scutellars. I regard such action at the present time to be hasty, since my preliminary observations indicate that certain species of the genera *Paroxyna* and *Euaestoides* may also intergrade with *Tephritis*. Furthermore, it is highly desirable that yet other genera in the family be evaluated in this light, and that consideration be made of the Neotropical fauna as well. Unfortunately, studies of other genera are not sufficiently detailed for the formulation of a master plan of generic and subgeneric groupings in what must be a very recent evolved segment of the family Tephritidae.

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